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			EXAMINER CHANG, AUDREY Y	
			ART UNIT 2872	PAPER NUMBER

DATE MAILED: 09/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/658,055

Applicant(s)

CURTIS ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21,23-25,27-43,45 and 47-60 is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,7,8,10,11,15,16,23,24,28,30,35,40,42,43 and 53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 5-7,9,12-14,17-21,25,27,29,31-34,36-39,41,45,47-52 and 54-60.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on **January 19, 2006** has been entered.
2. This Office Action is also in response to applicant's amendment filed on **December 19, 2005**, which has been entered into the file.
3. By this amendment, the applicant has amended claims 1-4, 7, 28, 30, 43 and has canceled claims 22 and 60-120.
4. Claims **5-6, 9, 12-14, 17-21, 25, 27, 29, 31-34, 36-39, 41, 45, 47-52 and 54-60** are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group and species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on **March 3, 2005**.
5. Claims 1-4, 7-8, 10-11, 15-16, 23-24, 28, 30, 35, 40, 42-43 and 53 remain pending in this application.

Response to Amendment

6. The amendment filed December 19, 2005 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

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claims 1, 24, 30 and 43 have been amended to include the phrase “an image of the information layer is formed having a size substantially equal to an incident surface of the storage medium”. The specification simply fails to give positive supports for this. None of the figures of the specification gives support for the image of the information layer has size equals to the “incident surface of the storage medium” if this surface means the total surface of the storage medium. It is impossible for such to happen, if an image lens is used to “focus” the image information to form “an image”.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. **Claims 1-4, 7-8, 10-11, 15-16, 23-24, 28, 30, 35, 40, 42-43, and 53 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The reasons for rejection based on the newly added matters are set forth in the paragraph above.

9. **Claims 1-4, 7-8, 10-11, 15-16, 23-24, 28, 30, 35, 40, 42-43, and 53 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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The specification and the claims fail to teach how could the information layer of the data mask can have *an image* and the image has a size substantially equals to the an incident surface of the storage medium. The specification and the claims fail to teach where does this image come from or by what is such image being formed? A data mask is just a two-dimensional medium that carries image information. No image will be formed by itself.

The specification also fails to teach how could an image of the information layer formed at an plane located outside of the holographic storage medium, as recited in claim 4, yet it has an “image” equals the size of the incident surface of the storage medium? If the image is formed outside the storage medium then there is no image at the storage medium.

Claim 24 recites a “data mask” only that is not in combination with another recited element of means is subjected to undue breadth rejection under 35 USC 112, first paragraph as a **single means claim**. The claim seems to cover every conceivable structure for achieving the stated property while the specification discloses at most only those known to the inventor.

Claim Objections

10. Claims 1-4, 7-8, 10-11, 15-16, 23-24, 28, 30, 35, 40, 42-43, and 53 are objected to because of the following informalities:

(1). The newly amended phrase “an image of the information layer is formed having a size substantially equal to an incident surface of the storage medium”, is confusing and indefinite since it is not clear what is considered to be the “incident surface”? Does this means the whole surface of the storage medium or does this mean the intercepted surface of the storage medium by the light generated from the information layer? **The claims are being examined as the “intercept surface” of the light generated by the image information layer. But clarifications are definitely required.**

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(2). The phrase “an image of the information layer is formed a plane located outside of the holographic storage medium” recited in **amended** claim 4 is confusing and wrong, since it is really not clear where does the image is formed. If the image is formed outside the storage medium , then how could it have an image substantially equals to the incident surface of the storage medium?

(3). The phrase “*recorded in parallel*” recited in claim 43 is *confusing* and *indefinite* in particular it is confusing with respect to the newly added phrase “*an image of the information layer is formed having size substantially equals to an incident surface of the storage medium*”. **The parallel is measured with respect to what?** If the multiple data pages are recorded in parallel **on** the storage medium, then how could the image of the information layer be equal to the *incident surface* of the storage medium, unless the incident surface is less than the actual surface of the storage medium? Also a data page usually means an image information used to record a hologram and the image information could be divided up into a plurality of data pages where each data page is presented or displayed **one at time** to record a hologram at a time. It is therefore not clear what does it mean by *record in parallel*?

Appropriate correction is required.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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12. Claims 1, 3, 7, 10, 11, 23, 24, 30, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Snyder et al (PN. 6,064,586).

Snyder et al teaches a method and a system for recording holograms in a holographic storage medium that is comprised of the step of illuminating a *spatial light modulator* (66, Figure 6, and column 7, lines 37-54), serves as the *data mask*, with a light beam (60) to produce a *modulated* beam, the step of propagating a reference beam (62) toward a holographic storage medium (70), and the step of recoding an interference pattern between the modulated beam, (from the data mask), and the *reference* beam (62) in the *holographic storage medium*, (please see Figure 6) as the holograms. **Snyder et al** teaches that the spatial light modulator has an *information layer* that is divided up into a *plurality of data storage sectors* (16) serving as the *plurality of the data pages*, (please see Figure 1, and column 4), such that each data storage sectors comprises a plurality of data pixels, (12).

Claims 1, 24 and 30 have been amended to include the phrase “an image of the information layer is formed having a size substantially equals to an incident surface of the storage medium”. **Snyder et al** teaches that the modulated beam which is the light beam imparted with the data information from the information layer is *imaged* by an **lens** (63) to the *storage medium* such that the *image light* implicitly has a size equals to an *incident surface* of the storage medium since the *incident surface* is the *intercepting surface* of the image light of the modulated light on the storage medium.

With regard to claim 3, the information of the data sectors recorded in the holographic storage medium are spatially overlapped.

With regard to claim 7, the holographic recording medium is positioned at the positioned such that the modulated light is imaged by a lens (63) to the holographic recording medium.

With regard claims 10-11 and 23, the holographic recording medium (70) is a *rectangular* card and implicitly is a disc.

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With regard to claim 24, the spatial light modulator (66) serves as the *data mask* with an information layer having a plurality of data pages wherein each data page comprises a plurality of *pixels*, (please see Figures 1-2 and column 4), as described above.

With regard to claim 30, **Snyder et al** teaches the holographic recording system having a *light source* (50, Figure 6) and a *spatial light modulator* (66) having a plurality of data pages serves as the data mask for relaying an information layer to a holographic recording medium.

With regard to claim 35, **Snyder et al** teaches that an optical element (63) is used to relay the image displayed on the data mask to the holographic storage medium.

This reference has therefore anticipated the claims.

13. Claims 1, 3, 7, 10, 11, 23, 24, 30, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Gusest et al (PN. 4,318,581).

Claims 1, 24, and 30 have been significantly amended that necessitates the new grounds of rejections.

Guest et al teaches a method and a system for recording holograms in a holographic storage medium that is comprised of the step of illuminating a *page composer* (20, Figures 1-5, , and columns 4-6), serves as the *data mask*, with a light beam (36) to produce a *modulated beam* , the step of propagating a reference beam (38) toward a holographic storage medium (24), and the step of recoding an interference pattern between the modulated beam, (from the data mask), and the *reference beam* (62) in the *holographic storage medium*, (please see Figures 1-5) as the holograms. **Guest et al** teaches that the page composer (20) has an *information layer* that is divided up into a *plurality of data arrays* (42a-42f, Figure 2) *serving as the plurality of the data pages*, (please see Figure 1, and column 4), such that each data pages comprises a plurality of pixels, (46, please see column 4, line 43 to column 5 line 23).

Claims 1, 24 and 30 have been amended to include the phrase “an image of the information layer is formed having a size substantially equals to an incident surface of the storage medium”. **Guest et al** teaches that the modulated beam which is the light beam imparted with the data information from the information layer is *imaged* by an **lens (22)** to the *storage medium* such that the *image light* implicitly has a size equals to an *incident surface* of the storage medium since the *incident surface* is the *intercepting surface* of the image light of the modulated light on the storage medium.

With regard to claim 3, the information of the data pages recorded in the holographic storage medium are spatially overlapped.

With regard to claim 7, the holographic recording medium is positioned at the positioned such that the modulated light is imaged by a lens (22) to the holographic recording medium.

With regard claims 10-11 and 23, the holographic recording medium (24) is a *rectangular card* and implicitly is a disc.

With regard to claim 24, the page composer (20) serves as the *data mask* with an information layer having a plurality of data pages (42a to 42f, Figure 2) wherein each data page comprises a plurality of *pixels*, (46, please see Figure 2), as described above.

With regard to claim 30, **Snyder et al** teaches the holographic recording system having a *light source* (10, Figure 1) and a *page composer (20)* having a plurality of data pages serves as the data mask for relaying an information layer to a holographic recording medium.

With regard to claim 35, **Guest et al** teaches that an optical element (22) is used to relay the image displayed on the data mask to the holographic storage medium.

This reference has therefore anticipated the claims.

14. Claims 1, 3, 7, 23, 24, 30, 35, 43 and 53, are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Blaum et al (PN. 5,510,912).

Blaum et al teaches a method and apparatus for recoding hologram in a holographic storage medium wherein the method is comprised a step of preparing a reference beam (26, Figure 2) to a holographic recording medium (10), the step of illuminating a spatial light modulator (30), that serves as the data mask with a beam to produce a *modulated* beam or signal beam (28) to the holographic recording medium wherein the reference beam and the modulated beam interfere at the holographic recording medium and the interference pattern is recorded as the hologram. The data mask or the spatial light modulator comprises an information having a plurality of data pages such that the information layer is imaged by a lens (32) to form an image at the holographic storage medium with a size that equals to the incident surface i.e. the intercepting surface of the modulated beam and the holographic recording medium, (please see columns 5-6).

With regard to claim 3, **Blaum et al** teaches that the hologram can be recorded in multiplexed fashion which means the holograms spatially overlapped.

With regard to claim 7, the holographic storage medium is positioned at a position wherein the modulated beam is imaged by a lens (32).

With regard to claim 11, the holographic storage medium implicitly is a disc.

With regard to claim 24, the spatial light modulator serves as the data mask.

With regard to claim 30, the hologram recording apparatus comprises a light source, (20, please see Figure 2).

With regard to claim 35, **Blaum et al** teaches that the holographic storage medium can be moved by reposition mechanism (50, Figure 2).

With regard to claim 43, **Blaum et al** teaches that the holographic storage medium can be moved by the reposition mechanism such that each page of the multiple data pages can be recorded on the holographic recording medium in parallel.

This reference has therefore anticipated the claims.

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15. Claims 1, 4, 10, 11, 23, 24, 30, 43 and 53 are rejected under 35 U.S.C. 102(e) as being anticipated by the patent issued to Edwards (PN. 6,538,776).

Edwards teaches a *holographic storage system and method* wherein the method comprises the step of *propagating a reference beam* (please see Figure 1, Reference path), from a *light source* (10), to a *holographic storage medium* (25) and the step of *illuminating a spatial light modulator* (SLM 20) serves as the *data mask* with a light beam to produce a *modulated beam* wherein the modulated beam and reference beam incident and interfere with each other in the holographic storage medium and the interference pattern is recorded in the holographic storage medium as a hologram. The spatial light modulator serves as the data mask comprises an *information layer* having multiple data pages (i.e. the information layer can be arbitrarily divided up into a multiple sections or pages), such that an image of the information layer is formed having a size substantially equal to an incident surface or the intercepting surface of the modulated beam on the holographic storage medium, (please see Figures 1-2, column 3, line 24 to column 4, line 29).

With regard to claim 4, Edwards teaches explicitly that the image of the information layer is formed at a plane located outside the holographic storage medium, (please see the Fourier transform plane (24B) locating outside the storage medium (25, Figure 1).

With regard to claims 10 and 11, Edwards teaches that the holographic storage medium can be a card or disc, (please see column 3, lines 61-64).

With regard to claim 43, the information layer can be arbitrarily divided up into sections of the data and be identified as multiple pages, (please see Figure 2 for the information layer), and the multiple pages are therefore recorded in parallel on the storage medium.

This reference has therefore anticipated the claims.

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Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. **Claims 2, 4, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Snyder et al.**

The method and system for recording holograms in a holographic storage medium taught by Snyder et al as described for claims 1 and 24 above has met all the limitations of the claims.

With regard to claim 2, this reference does not teach explicitly that the recorded data pages are separated by 1 micron to 10 mm. However this feature is either inherently met by the disclosure of Snyder et al or an obvious modification to one skilled in the art to design the recorded holograms be arranged with a desired separation for the benefit of making recorded holograms not interfering with each other.

With regard to claim 4, Snyder et al does not teach explicitly that the image of the information layer is formed at a plane located outside of the holographic storage medium. However such modification would have been obvious to one skilled in the art to make the data recorded in the storage medium not interfering with each other.

With regard to claim 28, Snyder et al does not teach *explicitly* that the spatial light modulator have a multiple information layers, however it is within general skill of worker in the art to provide multiple information layers in the spatial light modulator to allow multiple information being recorded in the storage medium.

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18. Claims 2, 4, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Guest et al.

The method and system for recording holograms in a holographic storage medium taught by Snyder et al as described for claims 1 and 24 above has met all the limitations of the claims.

With regard to claim 2, this reference does not teach explicitly that the recorded data pages are separated by 1 micron to 10 mm. However this feature is either inherently met by the disclosure of Guest et al or an obvious modification to one skilled in the art to design the recorded holograms be arranged with a desired separation for the benefit of making recorded holograms not interfering with each other.

With regard to claim 4, Guest et al does not teach explicitly that the image of the information layer is formed at a plane located outside of the holographic storage medium. However such modification would have been obvious to one skilled in the art to make the data recorded in the storage medium not interfering with each other.

With regard to claim 28, Guest et al does not teach *explicitly* that the spatial light modulator have a multiple information layers, however it is within general skill of worker in the art to provide multiple information layers in the spatial light modulator to allow multiple information being recorded in the storage medium.

19. Claims 1, 8, 15, 16, 30, 40, 42, 43, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Hart (PN.5,592,313) in view of the patent issued to Scherer et al (PN. 5,258,860).

Hart teaches a method and system for recording hologram on a holographic storage medium that is comprised of the *step of illuminating a master hologram* (H1, Figure 9), serves as the *holographic master data mask* to reconstruct a stored information layer onto a *holographic storage medium*, (H2) with an *object beam* (806), therefore creating modulated beam (806), wherein the master hologram (H1)

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includes a *holographic storage material*. The method further comprises the step of propagating a *reference beam* (852) to the holographic storage medium (H2) to record an interference pattern between the reference beam and the modulated beam, which therefore record a hologram containing the information layer, (please see Figure 9 and column 24). With regard to claim 53, a holographic recorded medium (H2) is created by the recording method. With regard to claims 40 and 42, the mater hologram serves as the data mask.

This reference has met all the limitations of the claims. With regard to the features that the holographic master data mask comprises a layer of data divided into a multiple data pages such that each of the data page comprises a *plurality of pixels*, as recited **claims 1, 30 and 43**, it is implicitly true that the division of a layer of data into a plurality of pages can be arbitrary done by simply dividing the holographic master data mask into multiple data sections each representing a data page as desired. This reference however does not teach explicitly that the holographic master data mask comprises *a plurality of pixels*. **Scherer** et al in the same field of endeavor teaches that an optically addressed spatial light modulator (OASLM) which implicitly includes a *plurality of pixels* can be used to record holographic data, (please see column 5, lines 34-37). It would then have been obvious to one skilled in the art to apply the teachings of Schehrer et al to use an optically addressed spatial modulator as the means for storing the master holographic information layer and serves as the holographic master data mask for the benefit of providing the data intended to be recorded with better accuracy and clarity, (pixels nature of the display gives the benefit of clarity and good resolution) and providing the means for easily changing and providing different layers of information intended to be recorded.

Claim 43 has been amended to include the phrase “an image of the information layer is formed having a size substantially equals to an incident surface of the storage medium”. **Hart** teaches that the modulated beam which is the light beam imparted with the data information from the information layer is *imaged* by an **optical element** (813) to the *storage medium* such that the *image light* implicitly has a size

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equals to *an incident surface* of the storage medium since the *incident surface* is the *intercepting surface* of the image light of the modulated light on the storage medium.

20. Claims 2, 4, 10, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Blaum et al.

The method and system for recording holograms in a holographic storage medium taught by Blaum et al as described for claims 1 and 24 above has met all the limitations of the claims.

With regard to claim 2, this reference does not teach explicitly that the recorded data pages are separated by 1 micron to 10 mm. However this feature is either inherently met by the disclosure of Snyder et al or an obvious modification to one skilled in the art to design the recorded holograms be arranged with a desired separation for the benefit of making recorded holograms not interfering with each other.

With regard to claim 4, Blaum et al does not teach explicitly that the image of the information layer is formed at a plane located outside of the holographic storage medium. However such modification would have been obvious to one skilled in the art to make the data recorded in the storage medium not interfering with each other.

With regard to claim 10, Blaum et al does not teach explicitly that the holographic recording medium is a rectangular card. However using rectangular card as the holographic recording medium is extremely well known in the art, it would have been obvious to one skilled in the art to make the hologram recorded in a card for the benefit of utilizing the hologram recording method to record hologram in card type document such as credit card for variety of purposes.

With regard to claim 28, Blaum et al does not teach *explicitly* that the spatial light modulator have a multiple information layers, however it is within general skill of worker in the art to provide multiple

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information layers in the spatial light modulator to allow multiple information being recorded in the storage medium.

Response to Arguments

21. Applicant's arguments with respect to amended claims have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments are mainly drawn to newly amended features. They have been fully considered and addressed in the paragraphs above.

22. Applicant's arguments are mainly based on newly amended features that have been fully addressed in the paragraph above. The applicant is respectfully noted that having a plane wave object beam is different from having an "image of the information layer formed having a size substantially equal to an incident surface of the storage medium", Figure 3 really does not give support for such. The plane wave nature of the object beam will not focused on the storage medium to form an image.

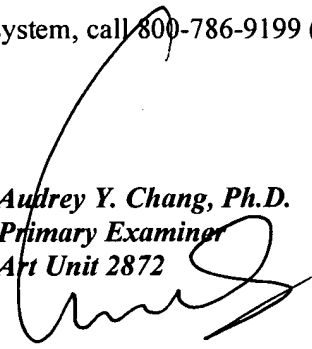
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Audrey Y. Chang, Ph.D.
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.